Governor's STEM Academy Brief

VIRGINIA DEPARTMENT OF EDUCATION

Office of Career and Technical Education Services

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The purpose of this monthly brief is to provide information, resources, and a networking vehicle to support the STEM (science, technology, engineering, and mathematics) Academies in Virginia.

NOTE: The publication of this brief will be suspended during the month of July and will resume August, 2012.

GOVERNOR'S STEM ACADEMIES SPOTLIGHTS

Cluster Focus: There are thousands of challenging job opportunities within the high-skilled industry of Architecture and Construction. Learners need a solid background in mathematics, science and technical skills. This issue focuses on the Architecture and Construction Career Cluster and the three Architecture and Construction pathways: Design/Pre-Construction; Construction; and Maintenance/Operations.

New Academies: In April and May, the Virginia Board of Education approved four proposals to establish new Governor's STEM Academies. Joining the current ten Governor's STEM academies are:

- Grassfield High School Governor's STEM Academy in Chesapeake which will prepare students for career pathways in engineering, technology, programming, software development and marketing;
- Fairfax County's New Commonwealth Governor's STEM Academy at Chantilly High School and Chantilly Academy which will prepare students for career pathways in engineering, technology, and network systems;
- Governor's STEM Academy at the Burton Center for Arts and Technology, Roanoke County, which will prepare students for career pathways in engineering, technology, broadcasting, and facility and mobile equipment maintenance; and
- Governor's STEM Academy for Engineering, Marketing, and Information Technology at Landstown High School in Virginia Beach which will offer programs in engineering, technology, digital communications, and sales and marketing.

CAREER LINKS

FOCUS ON ARCHITECTURE AND CONSTRUCTION CAREER CLUSTER

- National Association for Women in Construction offers teachers and students construction-related resources through its Career Center, Education, and Magazine links.
- ARCHCareers.org, ADDA, Glencoe, Make It Happen, and Minnesota's *i*seek careers are sites where students can investigate careers in the Architecture and Construction Career Cluster.
- The Weldon Cooper Center has released employment projections for the 16 career clusters for 2010-2020.
  - ✓ The following page links you to all of the career cluster materials: http://ctetrailblazers.blogspot.com/p/career-cluster-employment-projections.html
  - ✓ **Employment Projections for Architecture and Construction, 2010-2020** http://ctetrailblazers.blogspot.com/2012/03/employment-projections-for-architecture.html

GRANT OPPORTUNITIES

- Federal Resources for Education Excellence includes links related to American architects, architecture, and landscape design.
- Habitat for Humanity offers links to youth programs for Ages 14–25, Habitat for Humanity Lessons: High School for classroom resources on the need for housing assistance, and Habitat for Humanity House Presentation for a lesson in which students design floor plans and build a model of a home.

GRANT OPPORTUNITIES (CONTINUED)

- The School Funding Center Grant Database is comprehensive and up-to-date and contains every federal, state, foundation, and corporate grant available to U.S. schools. It contains 30 categories from which to choose. Another good resource is the Foundation Center. It lists all the foundation grants available to schools and is comprehensive and reasonably current. It, however, does not list any grants other than foundation grants.

INSTRUCTIONAL STRATEGIES

- Earthquakes from Newton's Apple.tv is a classroom activity to help students understand why buildings crumble in an earthquake, while Designing Structures to Perform Well During an Earthquake explains how to design buildings that can withstand considerable seismic activity.
- Architect Studio 3D allows students to explore the concept of architecture and design a house with Frank Lloyd Wright.
- Wise Home Design provides construction planning resources, including a construction method called ICF (**i**nsulating **c**oncrete **f**orms), in Is a Tornado Proof Home Possible?
- Buildings & Construction Science Fair Projects & Experiments provides sample projects for elementary, middle, and high school students.
- Dream Room Interior Design allows each student to design a personal bedroom for an imaginary client.
- Interior Design and Housing Makeover Project gives students the opportunity to redesign a room in their school and then perform an actual makeover of the space.
- The Evolution of a Home is a PBS lesson plan that introduces students to the basic principles and regulations involved in the design and construction of a home and allows the students to put this knowledge to work by designing their own homes and furniture.
- U.S. Green Building Council includes a section on K-12 Curriculum and Programs.
- Native Landscaping Module is a scenario-based six-lesson unit in which students design the landscaping for a high school construction project. The module incorporates concepts of agriculture, construction, mathematics, and science.
- Green Homebuilding provides articles on topics such as Thirteen Principles of Sustainable Architecture and Building with Nature.
- Building Environmental Science & Technology offers resources on Green Building Basics: Special Report, Green Building: Builders, Consumers and Realtor Primer , and Home Builders' Basics: Indoor Air Quality.

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